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VOL. XVII, No. 6

JUNE 1952

Remington Rand Methods News

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How Should Labor Participate In Gains Through Technological Improvements

By JOHN W. NICKERSON
Chairman, Advisory Group On European Productivity,
Mutual Security Agency

The author is proposing a plan typifying a method of action for Labor and Management to agree as to how the fruits of progress should be shared.

THROUGH THE Mutual Security Agency we are endeavoring to show our European Allies how to increase productivity and how to enable labor and consumers to participate in the resulting savings.

We need to proceed with a great sense of humility realizing that, in our own country, if Labor and Management had long ago been able to agree as to how the fruits of progress should be shared, much of the present chaos in industry and in government would have been eliminated.

Considering the depth of the subject, I do not presume to advance a stereotyped panacea. I do wish to analyze the problem and then propose a plan typifying a method of action which may be taken by those with sufficient courage to break with orthodox procedures which have been so fruitless.

I shall:

I. Discuss the industrial background.
II. Indicate the need for Labor and Management to agree on the general relationship between Productivity, Wages, and Prices.
III. Review the ways in which Labor is rewarded for its time and effort.
IV. Show the lack of a systematic method for sharing improvements.
V. Point out that the prevalent method of upsetting current earnings is destructive of relative values.
VI. Mention the dubious experience with profit sharing plans but indicate that in outstanding cases of leadership and cooperation they have been successful.
VII. Urge your careful consideration of what appears to be the one remaining general method of solving this problem, which because it seems unorthodox has remained practically unused but which if courageously followed could revolutionize industrial relationships.

I. INDUSTRIAL BACKGROUND

Down through the centuries war after war has been launched by pressure groups—political, religious, and economic—all selfishly seeking more material things on the theory that there is not abundance for all.

Our first economic scheme was slavery with complete security on the lowest of scales and with freedom a thing unknown. Then followed the feudal system and for years each lord and master had his faithful retinue of servants. Attributes of superiority were handed down from generation to generation. Under the poorest conditions the serfs were able to think of themselves only as inferiors incapable of rising.

With the industrial revolution there was a great change for the better. Nevertheless, as industries grew in size toward the beginning of this century, the men who promoted these large corporations had been, in many cases, financiers or merchants who previously had dealt almost exclusively with money and goods. Their natural tendency was to apply to the purchase and direction of labor the same rules which they had used in the purchase of materials—namely, to buy as cheaply as possible.

The natural reaction of workers was to band together to oppose this policy with force. The man on the machine learned that when orders had been filled and business was slack he was thrown out of a job often without warning or explanation, and with little regard for his future. What was more natural than to conclude that the longer it took to do a job the longer the job would last? What was more natural than to conclude that technological improvement should be opposed?

True, it could be argued that by producing things faster the cost would be lowered and the price for everyone might go down. It could be argued that new industries with jobs for more employees were formed when buggy manufacturers went out of business. These economic lessons are all in order and they may seem plausible to the worker, but does he look forward to new methods with desire when there is no participation for him and when his job and his pals' jobs seem immediately threatened?

Traditionally workers have associated method changes with loss of jobs, lowered earnings and loss of hard earned experience. This accounts for the antagonistic attitude of many workers and their unions to the changes themselves.

Several decades ago I was fortunate in being able to work under the direction of Henry Laurence Gantt. It is interesting to note that in 1910 he was voicing the same problem which we are discussing today.

The following are the very first words in his well remembered book "Work, Wages and Profits".

"The greatest problem before engineers and managers today is the economical utilization of labor. The limiting of output by the workman, and the limiting by the employer of the amount a worker is allowed to earn, are both factors which militate against the harmonious cooperation of employer and

employee which is essential to their highest common good.

"Efficient labor-saving devices, to be seen on every hand, bear testimony that the engineer is doing at least a portion of his work well. When, however, it comes to the utilization of these labor-saving devices, the lack of cooperation between employer and employee, and the inefficient utilization of labor very much impair their efficiency.

"The increase of this efficiency is essentially the problem of the manager, and the amount to which it can be increased by proper study is, in most cases, so great as to be almost incredible."

Now forty years have passed. We still speak of cooperation but we don't all mean the same thing by it. Many managers would say to labor,"Trust us, our long experience, our justice and our good will; work steadily, give us your ideas and together we will prosper."

Labor, however, does not take these things for granted, but replies, "We too have experience and it made us believe that merely following your instructions has led us to insecurity." It has gone further and by economic pressure has said, "If you operate, your operations must be limited by rules which we will negotiate."

II. NEED FOR GENERAL AGREEMENT ON PRODUCTIVITY, WAGES AND PRICES

Note these figures from the Bureau of Labor Statistics. In manufacturing industries for the twenty years between the two world wars productivity increased 125%, hourly earnings rose 28%. Unit labor costs dropped 44%, wholesale prices of manufactured goods decreased 38%. Everyone profited and business expanded.

What has occurred since World War II? While hourly earnings have doubled and trebled, productivity has had such a slight increase that unit labor cost and consequently, prices have increased at a dangerous rate. The only thing that has saved the situation from disaster has been the increase in the total production. This trip upward beyond the crossover point has fortunately made possible profits which could be used for reserves and expansion. If we should embark on the downward trip, we should soon be in the area of losses instead of profits.

Mr. Nickerson graduated from M.I.T. with a degree of B.S. in Mechanical Engineering and had his early instruction in Scientific Management from Henry Laurence Gantt. He was with Cheney Brothers from 1914-1942 in charge of Industrial Engineering, Industrial Relations, Director of Research and finally General Superintendent in charge of plant line and staff functions. He served as Director of the Management Consultant Division of the War Production Board in Washington and with Bigelow, Kent, Willard Company, Management Engineers. Mr. Nickerson is at present a consultant in Management Engineering and Chairman of the Advisory Group on European Productivity for the Mutual Security Agency.

Labor costs are equal to wages divided by productivity. They have just risen due to the great increase in wages. Do we wish to battle our way back by means of drastic wage reductions? If we do, labor is not going to be over-enthusiastic about private industry. The only other solution is to increase the denominator of our cost fraction—productivity.

In other words, if we now have an appreciable drop in total demand for production and at the same time fail to obtain a substantial increase in productivity it appears as though privately owned enterprise, and in the end privately owned property, and our very freedom of action will be most seriously threatened.

Would it then be very surprising if the increasing number of people who seem ready to substitute security at a low level for the present freedom of the individual, should aim for the formation of a government which would gradually take over industry, allocating orders, materials, workers and management and promising a distribution of wealth in relation to need? To stop this trend we must get at the roots of the conflict. Labor and management have far too long accepted the traditional belief that their interests are antagonistic in instances where work, wages, profits and prices are concerned.

As consumers, they both agree that productivity should rise and prices fall. When these consumers enter their roles as labor and management and meet in specific problems, selfish interests and fear blind them to what they know is right.

The cure for this selfishness and fear would seem to be the elimination of the causes of fear by courageous and unselfish acts. Both labor and management should drop their orthodox and traditional positions. By together seeking a way to share in progress we shall have more to share.

III. THE WAYS IN WHICH LABOR IS REWARDED FOR ITS TIME AND EFFORT

Management must understand clearly the fears, the hopes, the aspirations of labor and its representatives. It must be willing to work out in agreement and with mutual understanding the relationship between what labor gives and what it receives. What does labor give? Are there not just three types of contributions:

1. Time
2. Effort
3. Ideas

What should labor receive for these contributions? When a man qualifies for a job it seems right that the wages for doing that job be based on the necessary skill, responsibility and working conditions inherent in it. And it seems right that the man's payment for his time should also be related to such things as the quality of his work, his steadiness, versatility and length of service.

By a man's effort we mean his productivity, that is, the relation between what he produces and what he should produce as measured by a reasonable factual standard.

A man's payment for his effort should bear an equitable relationship to that effort. This relationship we call a wage incentive plan. The establishment of such standards and incentives is one of the most important management functions. Combined, they may be either a constructive force for increased production, better quality and good labor relations or they may be the means of disrupting an organization.

If the plan is simple, clear, just and based on well engineered standards so that they may be equitably changed only with changing conditions, then it will deserve labor's interest and cooperation.

IV. LACK OF SYSTEMATIC AND EFFECTIVE METHOD FOR SHARING IN IMPROVEMENTS

When the first two types of labor's contributions, time and effort, have been well worked out, we have too often lain back in self-satisfaction. But progress does not and should not stand still. Without ideas we should be stagnant. Over the centuries our standard of living has increased because of the acceptance and introduction of ideas. They are constructive thoughts and should not be repressed but should be given freedom to be born.

In order to share these gains, their amount must be known. Surprising as it may seem, management with very few exceptions is in complete ignorance of this subject. Of course, where there are no standards or incentives for effort one could never be sure of what the savings would be.

They can be estimated with sufficient practical accuracy where there are carefully worked out standards tied in with incentives. However, even in such cases if you should ask an executive to tell you how much the labor savings had been due to the changing standards brought about by changes in conditions or methods, he will seldom be able to tell you.

OF UTMOST IMPORTANCE

The subject we are discussing is one of the most important ones of the day. Yet we are losing by default. If we do not pay sufficient attention to it at least to obtain the facts, how can we expect to solve it other than by a collective struggle?

Far too long we have clung to the tradition that the time, the effort and the ideas of labor constitute the property of management.

Another error has been the assumption that within management and its engineering departments lies the only wellspring of ideas. Actually among the vast number of American workmen of today there is a tremendous potential of ideas waiting for the proper incentive to be translated into higher productivity.

It is true that thousands of suggestion plans have been adopted in the hope of tapping this reservoir. They have brought out many good proposals to improve working conditions, safety and so on. But how often do we receive proposals to reduce the standard time allowance per unit of product or to reduce the piece rate? How often is there presented a device to enable an employee to operate more machines? Yet these changes are necessary for progress and everyone, labor included, agrees with them as a general proposition for the other fellow or the other industry because we are all consumers.

Then why have suggestion plans failed to bring them about? In the first place, the most frequent payment for an accepted suggestion is 10% of the first year's savings. For a worker's idea which will save a thousand dollars a year, management will pay $100 and point with some pride to its generosity.

On the other hand, there are instances where the entire first year's savings are paid. In one such case I recall the statement of the president of the local union to the effect that there should be a 100% penalty, instead of a reward, because a suggester would be selling his pals down the river.

V. THE PREVALENT METHOD OF UPSETTING CURRENT EARNINGS IS DESTRUCTIVE OF RELATIVE VALUES

There are just two ways of financially sharing with labor the results of labor savings installations:

1. In current earnings.
2. In lump sum payments.

Here is a typical case of the use of the first method, which I recently encountered in a small metal working company.

There was a manufacturing standards department which made detailed time studies and established what appeared to be reasonable standards on a 100% participation basis. When methods were improved, however, the management, through neglect or fear of union pressure had formed the habit of either making no change in standard or of compromising a standard.

The engineers had just worked out a technological change which eliminated much of the men's hand work on a key operation. The old standard called for 50 units per day. The new standard in which times and allowances corresponded to the level of other operations in the plant became 150 units per day. The new standard was 300% of the old; a 200% increase in productivity.

But the new standard was not accepted by the union and for a while it looked as though the whole effort would be wasted by a plant shutdown. The union felt the employees should in some way share in this improvement. The only way they could think of was to fight for an easier standard. They settled on a 50-50 basis. A standard of 100 units per day went into effect and they held their earnings at the same point.

Now let us look at the economics involved. Ten men had worked on the job. They had received a total of about $25,000 a year. The available expensive machinery was limited. There was a large backlog of orders so that no one would have been laid off or transferred. Ten men would have remained and with each working at the normal shop incentive pace, three times the old production would have been turned out at a labor cost of $50,000 per year less than what it would have cost at the old rate.

Actually the ten men produced only twice the units with a savings of $25,000. Probably the management was credited with a smart accomplishment. Yet somewhere between the owners, the consumers

and the employees $25,000 per year was lost. From this battle the employees received no share in the savings. However, they ended by expending only two-thirds of the normal effort of the regular plant employees, an inequity in itself.

If, on the other hand, some circumstance had released the energy corresponding to the unapplied effort, this would have violently distorted the wage structure with some employees receiving 50% more than others at the same effort. This in turn might have resulted in pressure to loosen standards on other operations theretofore unquestioned.

All of you who function in the administration of wage incentive plans know that this picture is not exceptional. Industry is permeated with unbalanced labor standards.

The number of companies who have been enabled to maintain reasonably accurate standards in the face of changing conditions is altogether too small. During the war many of our largest companies frankly adopted a policy of not changing time allowances though conditions were improved or even partially eliminated.

Some companies still believe it is a good policy never to reduce a time allowance because of a technological change but to give the entire gain in labor cost to labor, counting on the volume gain for management.

There are union-management agreements in the hosiery industry and to some extent in pottery which provide for industry-wide uniform piece rates. Obviously any technological gains in labor cost go to labor, but think of the varying degrees of effort required.

Between these extremes are the vast number of cases in which the battle is a constant one. Often top management is unaware of its existence or passes over the troublesome problem.

Is this surprising, inasmuch as it sees no record of its actual gain through technology? Nevertheless down the line, on the part of the superintendent, the foremen and the standards department arise daily the questions, "Shall we report this change?" "Is it of sufficient significance?" "Will the expense or trouble of adjustment be too great?" "Will the affected employees stay on the job?" "If the union refuses, how shall we compromise?"

It is no longer a question of whether labor should share in improvements. Regardless of how we may feel about it, the sharing is going on, but going on very unevenly and unfairly.

With the governmental assistance of recent years labor's increased receipts have far exceeded its added productivity. In this process there has been practically no known relationship, no policy regarding the conception and acceptance of ideas.

Sharing the gains for ideas should have nothing to do with the current wages which labor receives for its time or its effort. The fact that we've tried to mix these things together or have allowed ourselves to be forced to, is the real reason for labor's opposition to evaluations and incentives. Is it any wonder that labor should dislike to work under tasks which have been adulterated and distorted?

We may as well frankly face the fact that this is the way labor has shared and is sharing in improvements; that is through unequal changes in current and continuing hourly earnings.

Can we not agree, then, that this method should be abandoned? If so, and if we believe that labor should share, then what is left? Is there any other way remaining except by lump sum payments? If that is the way, then should the sharing be done when the saving is actually put into accepted practice or after many months?

VI. PROFIT SHARING AND RATIO PLANS

Many plans have been devised to pay groups of employees lump sum payments at the year end and sometimes each quarter of each month. Their number is not relatively large but their diversity is such as to prevent a full discussion here.

They are important to our theme because they show a sincere desire to have labor share substantially in progress to improve labor relations and to enlist labor's interest in private enterprise.

Some of these plans pay a bonus depending upon the ratio of production units per man hour. Some use the ratio of sales dollars per dollar of pay roll or per man hour. Others use the ratio between value added by manufacture and the payroll. Another group is based on the profits of a company, calculated and distributed in various ways.

Some recent comprehensive surveys of profit sharing plans have indicated that, while successful in certain applications, there are many instances where they have not made substantial contributions to the improvement of employer-employee relations and that employees see little connection between their own efforts and the profitableness of a business.

The payment is so remote and dilute that it clearly takes something more than the bare plan itself to cause workers to desire to see methods improved, work assignments increased, labor costs and thereby their own piece rates or time allowances reduced.

It is just and important to bring out that this "something more" has been added to these plans in some cases.

The shining light of leadership has for several years been held before us by James F. Lincoln. The following is quoted from page 215 of his inspiring book "Incentive Management."

"What would happen if both union and industrial management accepted their mutual responsibility to the public as has been outlined in this book and as has been done to a considerable extent at The Lincoln Electric Company? Reduction to less than fifty percent of the previous cost of all manufactured products would be almost immediate. Increase of wages to more than double the present rates would occur, as has been demonstrated at the same plant. Decrease of selling price to less than half the present price would result. Living standards would therefore quadruple immediately for all. Of course, some such plan must eventually be universal. Delay, however, is dangerous.

"This mutual responsibility for cooperation of so-called worker and management is the place in which the labor union could be of decisive help. It is here that it can develop and function with safety and profit for all."

In this book he states that the total compensation per employee of the Lincoln Electric Company for the year 1950 was $7,701.

What is their system? They use piece rates based on time study. At the end of the year they pay a reasonable dividend to the stockholders; they set aside the necessary reserves and divide the remainder among the employees on the basis

of their contribution to the success of the company. This is determined by a merit rating process which is calculated three times a year and takes into consideration not only productivity, quality and job knowledge but also willingness to accept change and initiative in proposing improved methods.

So far as I have been able to see, Lincoln's accomplishments have not been approached and people are still skeptical. What has done it? The system? He tells us that the plan used makes little difference so long as the organization works together.

Lincoln has used no frills or fringes of paternalism. He has treated every one from himself down in his organization as labor and everyone from the bench up as a manager of his own job. He has upheld the dignity of man. He starts with a concept of man as of unlimited potential ability. He quotes King David "For thou hast made him a little lower than the angels."

If there were more people likely to simulate Mr. Lincoln's principles and practice and if it would not take so long to bring labor to a point of believing in long-term advantages, we might hope for a solution from profit sharing. We do, however, need the enthusiasm of those who have made it a success.

The significant lesson for us to learn from such an industrial demonstration is:

1. There is large latent capacity for productivity from which to draw.
2. It is possible to set up joint labor-management committees which will receive and give information and advice and affect policies without losing managerial discipline.
3. It is possible to create such a friendly atmosphere that employees will welcome changes by management which will increase individual productivity and decrease piece rates.
4. It is possible to secure from employees themselves proposals of methods which will reduce labor cost, without fear of losing their friends.

These things are novel; they are radical; they are revolutionary, but they are based on simple common sense. If they were practiced by all industry, we should not fear inflation, government ownership, nor foreign aggression.

The reason why such an example does not appear to be an immediate solution is that it seems to take years to build up sufficient faith and confidence. There is, however, no reason why we should not begin to better our incentives, whatever they now are, by a mental revolution.

VII. PROPOSAL. THAT LABOR SHARE IN TECHNOLOGICAL IMPROVEMENT THROUGH PROMPT, SUBSTANTIAL, WIDESPREAD, LUMP SUM BONUS

Well, how can we bring forth this vast potential of unused effort and ideas?

We have seen that it is destructive of high productivity, wage scales and morale to try to mix up rewards for progressive methods with current hourly wages. We have seen the difficulty of using profit-sharing due to dilution of incentive and to remoteness even though there have been some brilliant successes.

This brings us to the only remaining method: a prompt, substantial, widespread lump sum payment as a financial participation.

Under the plan I propose, the company's representatives would tell the employees or their representatives that, as essential and intelligent partners and teamworkers in the business, they are invited to participate in a continuing interchange of information and ideas concerning manufacturing standards and practices and that they are also to participate financially in savings due to labor cost reduction. This should be not just once in a while in desperation to get some plan in effect or in a manner to break down proper wage differentials, but in every single instance.

The company would break with tradition by agreeing to make this participation immediate, substantial, by lump sum and so that all would be affected. The employees would be expected to contribute willingness and initiative toward ideas which would increase productivity. Production standards or piece rates would be changed whenever there were changes in conditions, methods, materials or equipment.

Thus the wage structure, base rates and incentives would be held in balance by mutual desire and the battle for productivity would be one to be fought not by contestants against each other but by associates against impersonal obstacles.

The details of such a plan should be sufficiently flexible to meet the necessities and attitudes in each company. The following features are significant:

A. The savings in labor cost would be figured by multiplying the reduction in unit labor cost by the number of units in the forecast. The unit labor cost is known accurately where there are individual incentives. The number of units in the forecast, although not known with 100% accuracy are important budgetary factors and must be in the hands of those who command trust.

B. A decision should be made as to the amount of lump sum bonus to be distributed. For example, it might be decided:

   1. To share the entire estimated first three months' savings whenever a time standard is lowered due to any cause initiated by management.
   2. To share twice as much or the entire estimated first six months' savings whenever a time standard is lowered due to an idea from non-supervisory employees.

   There is plenty of room for judgment as to the optimum amount of the bonus. Experience alone will tell. It should be neither niggardly nor extravagant. Realizing the large amounts now paid out in an unsystematic manner, or being lost by default, we need not fear paying too much where there is a direct relationship.

C. The nature of distribution of the bonus would undoubtedly vary from one plant to another. The principle back of it is that all should have a clear sense of participation in labor cost reduction and therefore welcome it. A portion should go in cash to those immediately involved in the operations changed. In a small plant the remainder should go into a pool for all to share when the pool becomes of sufficient size. In a large plant there should be departmental or divisional pools. A fair sum should go to the non-supervisory suggester and good practice should include the supervisor in the picture.

D. The bonus should be distributed only after the new standards have been explained and put into effect for a

sufficient time to be considered accepted.

E. For example, assume that an employee offers an accredited suggestion, outlining the design of an automatic device which eliminates hand time and enables an employee to run more machines. The standards are changed, understood and in current practice. The net estimated reduction in labor cost for six months is $5,000. Ten men are directly and equally involved in the operation.
In this case the adopted plan might logically call for the payment of:
   1. $500 to the suggester, without whom there might have been no saving.
   2. $150 to each of the ten men most affected, who might have felt themselves in the position of resisting the change in rates and of resenting the suggestion.
   3. $1,500 to the department pool.
   4. $1,500 to the plant pool. These pools to be later distributed to all employees in proportion to earnings, with foreman included.

F. Constant attention should be given to price reduction so that the consumers' interests may be cared for and so as to increase the volume of business.

This plan is not advanced as a stereotyped technique to obtain maximum productivity by itself, but as typical of what may evolve when thinking men reason together for the common good.

IX. CONCLUSION

If we wish privately owned industry to continue as our bulwark against collectivism from within and aggression from without, we should realize the necessity for employees to feel happy under our system. They must have a greater understanding of the facts, a greater incentive and a greater sense of participation.

We need owners and executives who are willing to venture their business and their jobs, if necessary, to stand by right principles.

Those who fail to understand the human point of view should not attempt the use of wage incentives both for the sake of their own organization and for the sake of industry.

Nevertheless, among executives and organizations of equal technical ability, those who properly use task and incentive management will win in competition with those who do not.

We need humility to acknowledge when wrong and courage to fight when right; courage to overcome both traditional and outmoded methods and also the fear of collective pressure.

Our greatest gains have come as ideas through individuals. We must continue to stand firm for the individual freedom in which we believe.

CENTENNIAL OF ENGINEERING

SAM is one of the participating Societies in the Centennial of Engineering which will observe the 100th anniversary of the founding of the first national society in the United States. The Centennial will be held in the Museum of Science and Industry in Chicago during the period September 3-13, 1952.

This Society will be represented by our Chicago Chapter which will also hold its 1952 Industrial Engineering Conference in connection with the Centennial. There will be exhibits in the Metallurgical and Chemical Engineering building of the Illinois Institute of Technology.

More than forty national and international engineering societies and associations will hold convocations during this period. The Centennial will bring together the greatest grouping of engineers in the history of this country.

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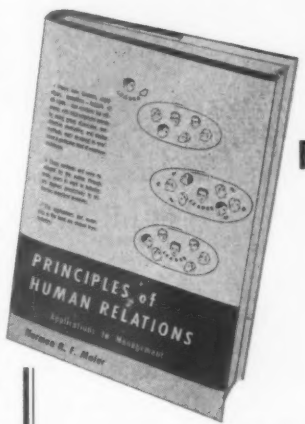

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W. B. Gerould

The Budget – Management Tool or Weapon

By W. B. GEROULD

President, Controllership Foundation, Inc., New York;
Secretary and Controller, A. G. Spalding & Brothers, Inc.

The author explains in detail the results of a study recently completed by the Controllership Foundation, Inc.

TO DEFINE a budget as a means of controlling costs tells only part of the story. Actually, it aims toward that objective by controlling *people*. The figures in the budget become a mould for human action: they constitute a pattern which personnel are enjoined to follow. Failure to "make the budget" implies a fall from grace, inviting approbrium, disciplinary action or worse. In spite of these considerations, this management tool—in some hands, weapon—went unexplored from a human angle until a group of so-called "figure men" delved into its use and abuses. Their findings should be helpful wherever accounting and production meet.

I refer to a study recently completed by Controllership Foundation, Inc., research arm of the Controllers Institute. Conducted for the Foundation by the School of Business and Public Administration of Cornell University, under the direction of Schuyler Dean Hoslett, the investigation was undertaken as the result of a preference poll among the 3,700 members of the Institute. It was supervised from its earliest planning stage until the final manuscript was completed by a panel comprised of the following Institute members:

Charles E. Dykes, controller, Cooperative G. L. F. Exchange, Inc., Ithaca; T. F. Geddes, president, Great Lakes Forwarding Corp., Buffalo; John H. Goodwin, Jr., secretary-treasurer, Columbus McKinnon Chain Corporation, Tonawanda; J. K. Hill, vice president and treasurer, The Norwich Pharmacal Company, Norwich; H. A. Ketchum, controller, Fasco Industries, Inc.; H. S. Kuhns, secretary-treasurer, The Haloid Company, and Norman R. Olley, controller and secretary, The R. T. French Company, all of Rochester; C. R. Tuckerman, secretary, Oberdorfer Foundries, Inc., Syracuse, and Willis T. Windle, controller and treasurer, The Carborundum Company, Niagara Falls.

It may seem odd to some that initiative in this undertaking rested with controllers, who are the accounting officers of their respective concerns, rather than with the engineering or human relations side of industry. However, controllers have recognized for many years that the budgeting process does not end when the budget forms are filled in with figures. More than is generally recognized, they have been concerned with what goes on when their budgets are brought into action. This explains why controllers responded favorably to the Foundation's inquiry as to the need for conducting some research in the area of the reactions to budgets of those who use them. The returns indicated a very real interest on the part of the Institute membership in the human factors involved. A substantial majority of those responding to the question believed that research into the problem should be undertaken.

The panel recognized that little, if any, research had been done in this area, so it was undertaken advisedly as a pilot study. To keep the project manageable, they narrowed its focus to the impact of budgets on front-line supervisors. While this leaves out many other large and important considerations, such as the impact of budgets on workers and on middle management, the result has been a clear-cut picture which revealed in depth and intensity what otherwise might have been lost. When first exposed to the survey findings, many panel members expressed surprise and pleasure at the very broad area of human behavior which this narrow focus illuminated. In addition, several members of the panel voiced an opinion which typifies the reaction among controllers—"Can this be happening to my company?"

RESEARCH CONDUCTED IN FOUR PLANTS

"The Impact of Budgets on People, as the published report of the findings is entitled, is based on field investigation conducted in four plants. The report primarily considers those production budgets, waste budgets and error budgets which make a direct evaluation of the line supervisors. Coverage was extremely high: in Plant A, 90% of the

factory supervisors and 85% of the finance supervisors were interviewed; in Plant B. 100% of each; in Plant C, 75% of factory supervisors and 50% of finance supervisors; in Plant D a 25% sample of each.

The four plants were not selected as in any way representing a sample of industry as to size, type or location. All are located in towns of less than 100,000 population, and all employee labor varying from nonskilled to highly skilled. All four plants are organized, so there is no question of union vs. non-union in the findings. Three of the four plants are branch plants of a parent organization, one is not. Each manufactures a different product and makes "custom" products as well as items for stock. The work force in each does not exceed 1500 employees.

In all four companies the process of preparing manufacturing cost budgets is approximately the same. In all cases it starts with a meeting of the controller, the assistant controller and a top management group to determine over-all financial goals for the company in the years to come. The controller's staff then translates the financial goals into the detailed cost breakdowns required for departmental budgets. This preliminary budget is sent to all superintendents, who are asked to scrutinize the budget carefully and report any alterations they wish to make.

Once the superintendents have their budget modifications clearly in mind, a meeting is held with the controller and his staff. Both parties come to the meeting armed with ammunition to back their demands. After disagreements are resolved, all parties sign the new budget proposal, after which comes the drive to put it over. What happens *during* this effort, and how it affects both "givers" and "takers" in the process is revealed in the report.

WHAT THE BUDGET STUDY REVEALED

The major, and basic findings confirmed what had been suspected by many of the more progressive controllers for a long time, namely, that (1) budgets tend to defeat their own purpose unless the human relations problems aroused by their use are solved; (2) the conflicting reactions of budget personnel and factory supervisors can be ironed out and replaced by cooperation and understanding on either side.

The Foundation's research shows how budget problems arise in the shop. Important differences exist between factory personnel and the "figure men" whose job it is to set up and police the budget. Many human relations problems stem from this conflict in attitudes. In addition to not "speaking each other's language," the two sides disagree on the value and the purpose of the budget.

In the minds of budget people, this survey proved, budgets are a means of improving performance. By their use inconsistencies, errors and weaknesses are constantly being uncovered, examined and reported to top management. When properly employed, they say, budgets are a means of instituting improvements quickly. They are of the greatest value when the results are put in top management's hands as fast as possible. In addition, the financial people feel, budgets motivate production people by giving them a goal to shoot at, and (as we suspected) are a handy means of putting pressure on factory supervisors.

Many of the budget people interviewed in the survey felt that the task of "selling" budgets to factory supervisors is almost insurmountable, for which they blame the foremen's lack of interest, lack of education and misunderstanding or mistrust of budgets. They also are aware of suspicion and a critical attitude on the part of the factory supervisors. One budget man made this typical observation:

> "I'll tell you what I think the big problem is. The factory fellows think the office guys are no good, that we are always trying to put one over on them. I think the big problem is to convince them that we aren't out to cheat them—that budget people are interested in fair and equitable budgets."

From the factory foreman's point of view, budgets are a means of spreading heat as well as light. To production people, by and large, they are far from being "cold pictures" of past production. Foremen tend to regard them as symbols —symbols of something which may arouse fear, resentment, hostility and aggression on the part of the employees toward the company, leading in turn to decreased production. As one supervisor complained:

> "I'm violently against the figures. I keep away from showing them to the workers. I know my boys are doing a good job: they're trying their best. If I give them the heat with this budget stuff they'll blow their top."

Here are some other points of difference between finance supervisors and factory supervisors, as seen by the latter:

1. Finance people are primarily interested in the past and future. They don't think of the present.
2. Finance people tend to be too rigid, once they have set up their figures.
3. Finance people see only the total picture. They never see the many problems that go to make up the total picture. They worry only about end results.
4. Finance people cannot see the other person's point of view. They know almost nothing about the problems a supervisor faces daily.
5. Finance people have a language of their own. It is completely different from the language of the shop.

Perhaps the most important difference is that in attitudes. As one supervisor expressed this, "A big problem with budget people is that basically they think they're the whole show. They have an overexalted opinion of their position. They should be taught that they are not superior to factory supervisors. I'd deflate their ego—teach them not to think their budgets are too important."

Another criticism factory people voiced was that the men who make up the budget are never satisfied. "They make a budget and then constantly increase it. Pretty soon the boys catch on and figure it's the same old stuff."

SUCCESS FOR BUDGET MAN MEANS FINDING OTHER'S FAILURE

Foremen also resent the fact that deviations, once discovered, are taken "over their heads" to top management—partly because it may be a violation of policy for a staff man to go directly to a line man, and partly because success for the budget man consists of discovering weaknesses in the factory. As the research team points out, this places the foreman in a failure situation. He not only experiences the negative feelings of being wrong but also is aware that

his superiors know it. Therefore, while the finance man obtains a multiple dose of success, the factory foreman obtains a multiple dose of failure—augmented by the fact that a report on the incident probably will be circulated through many top channels.

When asked for suggestions on how to correct such situations, budget people thought that factory people should be educated in the appreciation and use of budgets—while the supervisors felt the finance people should learn the other person's point of view, and should shed their belief that the best way to raise production is by exerting pressure. This, incidentally, was seconded by the controllers who were interviewed as part of the study. They felt that the budget personnel should be given a thorough course in self-appraisal and in how to understand and get along with people.

CORRECTING THE SITUATION

Two basic ways to overcome the problem emerged from the many pages of research. One is to obtain true participation from the factory supervisors in actually making up the budget, as opposed to pseudo-participation—which results when the foremen are confronted with a budget that is already set, and are required to sign it after purely nominal "discussion." A better way, this study shows, is to let the supervisors in on the preliminary stages, too, and to put this participation on a group basis, rather than to have them hold individual conferences with the budget executives.

Another important finding concerns human relations training for the budget people, to help them win acceptance and cooperation from the factory personnel —in other words, to help them "sell" cost records and budgetary control.

"There needs to be some instruction in the basic content of human relations as a field of study. This includes the concepts of informal and formal organizations, industrial organizations as social systems, status system in industrial organizations and such subjects as interviewing, counseling and leadership. Consideration of these subjects should help the financial staff become more aware of the human problems existing in organizations, as well as those which specifically arise out of the use of budgets as a means of cost control and motivation."

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Noise In Industry

By CAREY P. McCORD, M. D.

Consultant

Institute of Industrial Health, University of Michigan

Man made noises which have multiplied into a disturbing reality, threaten to impose new difficulties upon industry.

AS AN EARLY PROSPECT, noise threatens to impose upon industry new difficulties. The initial burden will fall upon medical and compensation departments. Always a small segment of the legal profession engages in the fomentation of litigation centering about worker claims for compensation benefits. Champerty in itself may constitute a crime but who has heard of any prosecution of those who indulge in that unadmirable practice?

Unlike beryllium poisoning, which in fact constitutes a wholly new occupational disease, there is nothing new about noise. One only has to see the deep ruts worn into the stone pavement of narrow streets of excavated Pompeii to realize how hideous days and nights must have been made by the clatter of chariots and horses hooves. More than one Latin writer has recorded that the most disturbing noise of the period was the crack of driver's whips.

Most noise, which by one definition is only unwanted sound, is man made. Exceptions arise from thunder, farm and domestic animals, wild animals, birds and screaming children.

With increases in population, the disposition for humans to assemble in cities and the expansion of industry, man made noises have multiplied into disturbing reality. The rapid growth of cities coincides with the waving of building materials so that domiciles, whether single structures or apartments, are so often so flimsily built that noise is inescapable. City and highway traffic but adds to the total noise load.

THE NATURE AND MEASUREMENT OF NOISE

The human ear is capable of perceiving sound vibration in extreme range from 7 to 20 thousand per second. The frequency has much to do with the disturbing quality of sound. Low pitched, low frequency vibrations are of little consequence. Irregular sounds are more disturbing than regular ones.

The unit of measurement of sound is the bel, which is the least sound that may be registered by the ear. Multiples of the bel lead to decibels, which in terms of appraisal increase logarithmically. Thus, 95 decibels is some millions of times louder than 90 decibels, etc. At this time it is possible to measure both over-all loudness and within this total sound, various frequencies— thus an over-all loudness may be broken down into a veritable gamut of frequencies. At once it should be realized that two sources of identical sound, such as sirens, by no means produce double the amount of loudness.

Two such sources operating in unison scarcely augment the disturbance over a single one. For immediate practical purposes, it is customary to measure only over-all loudness.

THE DAMAGING ACTION OF NOISE

On a theoretical basis, it is possible to demonstrate within humans and animals that noise provokes a complexity of unwanted states such as excessive fatigue, impairment of the flow of digestive fluids, increases in the pressure of spinal fluids. More important is the indisputable fact that high decibel noises sufficiently long may bring about measurable hearing loss among those exposed. While long continued noise is perhaps more important, it is well established that a single noise of high intensity and in close proximity to the ear may affect significant damage, demonstrable, at least, in animals by the actual disclosure of some ear cell destruction. The term "echeoses" has been created to designate whatever impairments derive from noise.

APPRAISAL OF HEARING DAMAGE

While the measurement of sound may constitute a relatively simple scientific feat, the measurement of hearing loss attributed to noise is fraught with difficulty. At once it must be granted that noise deafness is a reality. In certain trades, such as forge work, or boiler making, the majority of long exposed old time workers are "Hard of Hearing". Partial deafness is the characteristic stigma of their trade. On the other hand, with advancing years quite apart from noise, diminution of hearing acuity is common. This is a part of the total degenerative processes that add up to senility. At this time, compared with 1900, the percentage of older workers, that is workers beyond 60 years of age and in the manufacturing trades, is high. In addition to hearing losses resulting solely from physiological degeneration, many workers present hearing impairment resulting from aurol infections at some period of life and thus is unrelated either to noise or aging processes. In every work community, a few workers who believe themselves impaired as to hearing, suffer only from impacted ear wax which is unknown to them but willingly is ascribed to noise damage even when no noise exposure exists.

All considered, readily there might be assembled a listing of no fewer than 400 trades or occupations that charac-

teristically are labeled "The Noisy Trades". Although few trades are inescapably noisy, it is within these 400 employments that outstanding alertness and agitation is being stirred up over the realities and potentialities of noise damage.

While the genuineness of noise damage is not contested, clear is the fact that some demonstrable impairment is reversible—that restoration to normal quickly ensues upon suitable removal from noise exposure. At the present time, there are no medical procedures that are infallible in establishing that an encountered deafness is rightly attributable to noise as a cause, or even partially so, and conversely, what are the factors that have brought about the total affection. In that statement lies the crux of the hell's field of difficulty now growing up around industrial noise deafness, real and imaginary.

STANDARDS OF NOISE EXPOSURE

As yet, physicians, including the specialists in otology, are unable to agree upon any single standard as to where detrimental exposure prospective to hearing impairment begins. It is fairly well agreed that decibels at or below 85 are tolerable, although possibly disturbing. It is almost agreed that by the 95 decibel level some damage is expectable. The consensus runs to 90. The disagreement is more fundamental. Valid contentions emphasize that the mere loudness level is not conclusive, since frequency is the important consideration. This leads to the concept that there should exist multiple standards, each predicated upon frequency preponderance.

There is no disagreement that exceedingly high levels of 120-130 decibels are early damaging and that immediate pain is a prospect. The situation is further disturbed by the fact that many persons are exquisitely sensitive to noise —at least on an annoyance basis. Many persons are genuinely unable to sleep in the presence of a harmless "drip drip" of a water faucet—or a whir of a nearby motor.

For the moment, laying aside the organic disease of some noise deafness, it may be well to pursue loss of sleep as the common noise disturbance. Although legal restrictions have gone far in curtailing the sale of sleep producing drugs, the use of such drugs, solely for the purpose of gaining sleep in the presence of noise is stupendous. The ill effects of such drugs may be recognized as undesirable on the one hand but on the other there may be catalogued the undesirable features of insufficient sleep. It is entirely impossible to contemplate any standards for noise that unfailingly will remove from the super-sensitive all prospects of emotional mal-responses.

CONTROL OF NOISE

Noise in industry (but not including the barnyard noises of the farming industry) is as subject to control and prevention as much as smallpox, but is far less easy and far more expensive. It is well known how and why noise arises in industry, how it is propagated and how it may be harnessed. All such involves architecture, design of machinery, maintenance of machinery, trade processes, substitution materials, isolation, and when these fail or are not applicable, individual worker protection. Some of these items are now a little explored, at least to the point of examples.

Without invading the realm of the architect or the acoustical engineer, it becomes a generality to observe that much noise may be avoided or abated by the acoustical treatment of ceilings and sometimes other building structures. The thickness of partitions, for example, in offices often fully determines the noise acceptability of work conditions. Many a noise maker, usually moving parts, may be subjugated by suitable enclosures even when numerous individuals are called upon to work nearby. One of the little recognized advantages of air conditioning resides in the opportunity to close off all windows and doors, thus eliminating outside noise, particularly in industrial offices, from outside disturbing sounds such as automobile traffic.

The designers of machinery, prior to any appearance at its point of use in industry, should be called upon to avert the prospect of noise through planned types of mounting and vibration absorbing material or to specify no metal parts, if practical, where metal parts become the source of noise.

As an example of altered work processes, there may be cited the growing practice of squeezing operations, a noiseless step, as a substitute for riveting. The designers of locomotive whistles readily might serve the interest, particularly of the public rather than industry, by the production of warning alarms of a frequency fully attention attracting but constituting no insult to the hearing organs.

In the usual industry, nearly worn out machinery is the foremost source of noise. Maintenance is a prime factor in noise abatement. Loose and worn gears, defective link conveyers, loosened up housings, and such, contribute mightily to industry's noise.

Wearing of ear stopples or plugs, commonly designated in this country as "ear defenders", is a practice well known to Europe but scarcely known to the United States except in military enterprises. The wearing of these small appliances, when properly constructed and fitted, may well reduce sound as it reaches the ear by 30 decibels at some frequencies. Nearly always they do remove the overplusage of noise that reaches into the damaging zone. These ear defenders are of little worth unless complete occlusion of the ear canal is achieved. Workers often dislike the wearing of earplugs because, unless inured to the practice, they are early discomforting in the same manner as the first wearing of false teeth, or even the first wearing of bi-focal eyeglasses. Apart from industry, many ten's of thousands of persons wear ear defenders at night solely to promote sleep. They are kept as readily available as the necessary toothbrush or safety razor.

THE LEGAL CONTROL OF NOISE

The mere passing of a law, with respect to noise, frequently ends up in futility. By what law may a dog be prevented from barking? Or a cock from crowing? Laws prohibiting the blare of automobile horns, or the late loud playing of radios may warrant admiration as an idea, but no city has sufficient enforcing officials to enforce any such laws effectively. The mere hauling into court of an offender as an example to the public appears to eventuate in nothing. Most legal jurisdictions already have legal instruments applicable to noise control even when noise itself is not specified. General nuisance provisions permit the inclusion of pernicious noises as an offense. This type of

legality applies to the operation of motor vehicles without mufflers and the harboring of some animals such as cattle, chickens, on urban premises. Recognizing some relief from the instrumentality of laws and particularly for vicious offenders, by and large, legal measures are without hopeful prospects.

EDUCATION IN NOISE ABATEMENT

With outstanding reference to public noise and in regard to the total community, civic pride represents the outstanding opportunity for noise control. In industry this opportunity is less apparent. The opportunities of education is somewhat limited to management, the plant engineer and the safety director. The individual worker has his opportunity but in the overall appraisal, it is likely to develop that the individual is relatively only a minor offender, what with noisy whistling, singing, pounding and such disturbing acts. Education in noise control in industry is not a feature but is not entirely lacking.

COMPENSATION FOR NOISE DEAFNESS

At this time, this country finds itself confronted with numerous possible injustices in the adjudication of compensation claims. The disposition is to favor the worker whenever a scintilla of findings arise in his behalf. At this time, the whole country, including industrial workers, is litigation minded. Something for nothing is all too much in evidence. Because of this attitude, sound reason prompts the belief that compensation claims for alleged noise impairment may attain to awards even in the presence of no or scant evidence of any hearing impairment as to noise as the cause or contributor. Since impaired hearing in some degree is the rule and not the exception for those workers past 60, a major threat impends. Should a major onslaught develop, and that is a possibility, entire industries may be wiped out through the sheer impossibility of making payment to highly numerous claimants who have successfully furthered their contentions. At once, laudable questions may arise as to what is disability in relation to work capacity in connection with workers who may have lost 15% or 30% of hearing capacity in one or both ears. New interpretations may be in order. In some few situations, possibly it may be established that minor hearing loss constitutes an advantage to workmen in the pursuit of their trades.

This recital recognizes no belief that industrial management is resistant to the payment of deserved awards when it has been well established that genuine disability is a result of some work factor. This wholesale disposition may well balk at the attitude that attends some of the claims now arising involving hearing impairment of low degree and uncertain causation. The immediate need is for better clarification on a medical basis. The need is great for new methods in diagnosis, differential diagnosis, measurements of hearing loss, and the detection of functional disturbances in the absence of organic damage.

The early decisions of compensation boards inevitably will become the governing principles for future claim. The tasks of these judicial bodies are stupendous. Fair minded as they may be, only rarely does a medical situation remove opportunity for equivocation. The need is for the guidance for these boards by the best medical minds, which in turn are in need of better guidance from their own appraisals in relation to noise deafness. Intelligent speed may be in order, but mere haste may be ruinous.

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This address was delivered before the 3rd Annual Conference of the National Association of Foremen held in Pittsburgh. Pictured are Mr. Cooper who was a panel speaker and Clayton D. Kuester of U. S. Steel who served as General Chairman of the Conference.

The Will To Work More Effectively

By R. CONRAD COOPER

Vice President of Industrial Engineering,
United States Steel Company

HOW CAN INDUSTRIAL engineering help increase the product output per man hour? This is a timely question. The heavy demands for production, the shortages of manpower, materials and equipment, the burdens of taxation, and the decreased purchasing power of the dollar make it exceedingly important to bring about capacity operations of existing equipment, maximum conservation of available materials, and the highest sustainable level of employee performance.

As we see it, the primary needs for the attainment of this objective are two-fold:

1. There is need to bring about understanding on the part of employees and their union representatives that increased productivity is mutually beneficial to all concerned because it is the stepping stone to higher production, lower costs, greater continuity and security of employment, higher wages and salaries, increased profits, lower prices, and wider distribution of the benefits of the enterprise.
2. There is need to develop full cooperation between the employees, union representatives, and management in the initiation, installation and operation of all actions to: (a) increase the output from existing equipment and facilities; (b) conserve available raw materials and increase the yield of quality products from those consumed; and (c) make more effective productive use of each employee's skill, effort, and time.

We do not profess to know all the things needed to accomplish such results. We will merely suggest a few ways in which we think industrial engineering can contribute to the common endeavor.

Our industrial engineering beliefs arise from certain related facts and opinions. For example:

1. With the ever-increasing amounts of the tools of production, it becomes increasingly important that such tools be operated at their most productive rates because only by the effective use of the tools of production, can investment in them be justified and only by such justification can new tools and the related jobs of their operation be supplied.
2. The machines and processes cannot operate themselves; they must be regulated by people whose pay, in our business, is the largest single item of cost involved, and whose performance regulates not only the cost of payroll but most of the other factors of cost.
3. The owners of the enterprise can supply the tools of production; the management can acquire the raw materials, employ the people, and plan the operations; but at that point, under the given circumstances at the given time, the results of the operation depend entirely upon supervision and the rate at which the employees perform the available work; in other words, the employee performance rate.
4. No matter how good the equipment, the materials, the plan of operation, and the supervision, the attainment of maximum production and minimum cost can be accomplished only if the employees perform at the highest attainable level consistent with safety, good health, and sustained effort.
5. No single factor has more influence upon the level of employee performance than has fair pay for fair performance.

AREA OF DEVELOPMENT

Thus we believe that one of the most important matters in the employer-employee relationship is the area of developments calculated to insure that: (1) each employee shall receive fair pay, both as related to the employee's individual contribution of skill, effort, and time, and as related to the pay of each other employee; and (2) the Company shall receive fair value in services returned by each employee.

These matters of course involve the industrial engineering fields of wage and salary evaluation, labor measurement, incentives, and methods. Clearly, therefore, sound industrial engineering services bear heavily upon the will of employees to work more effectively.

Our particular views have had some substantial testing in practice. About six years ago we addressed ourselves

to the questions of fair pay—fair performance relationships in negotiations with the United Steelworkers of America, CIO. The basic answers to the questions seemed so self-evident that we included the following provisions in a labor agreement.

"The fundamental principle of the work and wage relationship is that the employee is entitled to a fair day's pay in return for which the Company is entitled to a fair day's work.

"The fundamental principle of the performance and incentive wage relationship is that when regularly required on an incentive job to perform work over and above the requirements of a fair day's work, an employee is entitled to equitable extra compensation over and above a fair day's pay.

"The term 'equitable incentive compensation' shall be understood to mean extra compensation over and above the rate of a fair day's pay for the job in proportion to the actual performance required over and above the performance rate of a fair day's work on the job."

WAGE SCALE RATE

We identified the standard hourly wage scale rate as the rate of a fair day's pay, stated the definition of a fair day's work, and established the principles with respect to any new incentive to be installed thereafter.

Six years later, and with the experience accruing out of some nine hundred applications in a wide cross-section of operations, these principles seem to us just as basic and just as sound as they did at the outset.

Such problems as we have encountered do not arise from the principles. They arise from the practicalities involved in applying the principles to the facts of each individual operation and the employee or group of employees involved.

The most significant lessons we have learned from these experiences relate to three primary needs. These are:

1. The need for effective management organizational arrangements to establish policy and handle the determination, application, and maintenance of wage and salary evaluations, labor performance standards and incentives.
2. The need for sound methods engineering, the prerequisite to the determination and application of performance standards and incentives.
3. The need for mutual understanding between management and employees that there must be integrity of purpose as to the functions and proper use of performance standards and incentives.

These we list not in the order of their importance as related one to the other, but in the order of their necessary appearances as we see it, if the maximum potentials for increased productivity through industrial engineering services are to be realized.

In other words, we believe effective organizational arrangements and sound methods engineering are the first essentials to make lasting results possible.

WATCHWORDS

In this endeavor training is the watchword. To illustrate the point we will mention but a few items on which training is necessary.

1. Training to both management and employees that the primary function of an incentive is to provide extra pay for extra performance. That means pay above a fair base rate in return for work above a fair base level of performance. That does not mean extra pay just because employees want more money and demand it upon threat or penalty of strike. It does not mean extra pay for substandard performance or periods of idleness which, when conceded, constitutes discriminations against those employees who earn their extra money, and in substance represents waste of the employer's money.
2. Training to both management and employees that performance standards and incentives are applicable only where performance above a fair rate is needed and where performance can be measured with reasonable accuracy and practical consequence. Incentives are a useful device only when used for the accomplishment of known good business purposes, and not for the purposes of wage handouts to appease pressure groups of employees.
3. Training to management and particularly to Industrial Engineers that people generally do not like that which they do not understand and consequently an application of performance standards and incentive must be understood by both those who supervise the operation and those who perform it if the best results are to be obtained.
4. Training to management and employees that there must be an integrity of purpose and practice in the determination, application, and maintenance of performance standards and incentives.

The substance of one of the labor agreement provisions previously mentioned is important. It means that the standards must be uniformly fair. They must be established to reflect a given set of conditions. They must be guaranteed against change as long as the controlling conditions upon which they were based remain unchanged. They must become null and void when those conditions change. And they must be replaced by new standards which, as compared to the replaced standards, reflect only the change of conditions.

We believe that a full discharge of this obligation is necessary to provide the foundation stone for the development of mutual understanding between management and employees and integrity of purpose as to the proper use of performance standards and incentives.

In practice the basic principles of such obligation protect the mutual and respective interests of the employees and the Company.

EMPLOYEE PROTECTION

The employees are provided with the protection that the performance standards, once established for a specified set of conditions, are guaranteed against change as long as those conditions continue to exist, and even if the conditions change the performance standards will be adjusted only to the extent of the changed conditions.

The Company is provided with the guarantee that at all times the performance standards shall reflect fair performance requirements on the jobs as they exist.

Both parties have the assurances that: when the performance standards are met, value is received for services rendered; and when the performance standards are exceeded, the employee receives appropriate reward in direct proportion to extra performance and the Company receives proper return in the form of extra service.

Nothing less than a sound structure of fair performance standards, accurately

determined, correctly applied, and properly maintained, can comply with those principles and endure the test of time.

We all know that a sound structure cannot be built on an unstable foundation.

Our experiences prove that the maximum results obtainable from an incentive installation will be less than satisfactory to the affected employees and the Company in any given instance that involves: (1) substantial waste of the employee's time through required idle time, avoidable delays, or the requirement to perform unnecessary work; (2) unbalanced distribution of work loads as between jobs of a crew or as between crews; (3) unnecessary or extensive abnormal effort; (4) needless exposure to abnormal working conditions or hazards; or (5) difficulties of operation caused by avoidable failures to provide effective facilities, equipment, processes, or services.

The disclosure of such conditions is a methods engineering job, no matter by whom performed. The correction of such conditions is a management responsibility, one to be solved by responsible corrective action, which runs to the fault involved. The mere imposition of an incentive upon an unsound method of performing an operation will not correct the unsound methods condition. It will merely establish an unsound incentive.

STANDARD PRACTICE

It follows, therefore, that an application of performance standards and incentive should not be undertaken until the operation has had careful methods study and the proper conditions for performing that operation have been determined, specified, and established as standard practice.

Thus we believe that sound methods engineering must precede the determination and application of performance standards and incentives.

With these thoughts in mind, let us consider for a moment the need for effective management organizational arrangements to establish policy and handle the industrial engineering services involved in the interrelated subjects of wage and salary evaluation; methods engineering; labor measurement; equipment and material standards; incentives; and basic standards for incorporation into operating controls, production planning, standard cost, pricing schedules, and other related management activities.

THE FUNCTIONS

In our case these subjects have been identified as constituting the function of industrial engineering. We believe that:

1. The factual determinations in such matters form the foundation of yardsticks by which to determine proper pay for people, plan operations, judge performances, and regulate expenditures. Therefore, they are of fundamental importance to the immediate and long-term welfare of the enterprise.
2. The determination and application of such yardsticks involve difficult matters bearing on the direct responsibilities of various administrative divisions of the Company's management. Therefore, they require a high degree of interdepartmental participation and cooperation.
3. The proper handling of this function requires: (a) full executive recognition of the necessities for such service; (b) assignment of authority and responsibility for the interrelated parts of it to a single directing head with executive status; and (c) working arrangements within the management structure through which such executive may coordinate with, serve, and receive the assistance of the executive heads of the other management responsibilities having major related administrative interest, specifically operating, accounting, and industrial relations.
4. The function of industrial engineering must have the full backing of the Company's chief executive. No management function that bears so intimately upon the administrative affairs of other management functions and involves matters of such importance to the enterprise can be discharged effectively without full participation and support of the Company's chief executive.
5. The line operators who direct the operations and are called upon to produce the products at minimum cost must understand that such results can be accomplished only through their skillful use of sound industrial engineering determinations. They must be able to see the benefits to be derived by such service. They must be convinced of their ability to do a better job when proceeding on the basis of fact than when by rule-of-thumb. They must realize that such improvements as are made or not made are the direct responsibility of the operator—not the industrial engineer.
6. The accounting people who must apply the results of the industrial engineer's factual determinations in the daily records and transactions of the business must participate fully in the development of policy and procedure through which those determinations are made. Their participation is needed to insure that the results thereof are subject to practical application and accurate adjustment for new or changed conditions.
7. The industrial relations people who are called upon to negotiate the industrial engineering findings that affect the daily lives of employees likewise must participate fully in the development of policy and procedure through which those findings are made. Otherwise the findings may not be fully negotiable or the negotiators may not be properly equipped for the discharge of their responsibility.
8. And last but by no means least, the industrial engineer must be qualified and willing to perform the work at hand. He must understand his function as that of technical service to facilitate the handling of other people's problems and therefore, must approach those problems with complete sympathy for the point of view held by those people.

We operate through an arrangement based on those points. Through this argument we have found that the effectiveness of any particular policy is measured by the degree to which it is understood and wholeheartedly supported by the foremen who must apply the policy and the employees who are subject to the policy. This we consider to be of primary importance. In our minds it completes the circle. Fair pay for fair performance under sound methods in accordance with reasonable policies uniformly understood by employees and management contribute to the will to work more effectively and lead in the direction of increased productivity for the common good.

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Management and Natural Resources

By OSCAR L. CHAPMAN

Secretary, Department of the Interior, Washington, D. C.

The concept of resource development is essentially a management job involving identifying goals and needs and planning their realization.

THE DEVELOPMENT OF scientific management and the movement for conservation of natural resources in this country went hand in hand. Gifford Pinchot and Frederick Taylor were not only contemporaries. They were also struggling with the same fundamental problems. The one was concerned with efficiency in the use of natural resources; the other, with efficiency in the use of human resources. This close relationship is symbolized by one of your eminent associates, Mr. Morris Cooke, who has not only been a student of Taylor's but also an outstanding leader in the modern conservation movement.

Most of us are old enough to remember the day when Americans still talked glibly about our "unlimited" natural resources. This country was blessed by nature with incredible riches—of soil, of timber, of minerals, of water, of everything else, seemingly, that men need to build a prosperous society. For generations we disregarded how men used these resources, since we were not concerned with their depletion. Gradually, the limits of our resources became apparent and increasingly public leaders called attention to the need for conservation.

The conservation movement was born at the turn of this century as a reaction to the unbridled exploitation of our natural resources. Since it began as a reaction, it went to an extreme. Most of us can easily remember the time when conservation seemed to be principally a philosophy of locking things up and putting them away.

The conservationist of that day seemed to be a man who believed that our natural resources must not be used *now;* instead, they must be kept intact for some vaguely defined future generation.

The result, oftentimes was much as if a spendthrift who had awakened to his folly, buried his gold in his garden, refusing to let it even draw interest for him, and scorning all investment opportunities in order that his hoard might remain undiminished—and unused.

This approach to conservation was dominant for a long time, and still is proposed occasionally today. As the years passed, we moved away from the extreme position and began to realize that conservation should include wise use of resources. We no longer talk about locking up our resources. We recognize today that we must use them in such a way that they will contribute to our economic strength.

MANAGEMENT JOB

This new concept of resource development is essentially a management job. It involves identifying goals and needs and planning for their realization. Resource management includes, also, the identification and clarification of interest; the reconciliation of conflicts, and the projection of requirements into the future. Sound programming, scheduling and budgeting, and careful organization and staffing are, of course, prerequisites. In fact, all of the techniques which have through the years been associated with progressive, scientific management must be utilized if our resources are to be used widely.

I am writing as the manager, so to speak, of a great Government department which has a large measure of responsibility for the way in which our resources will be developed and managed in the years just ahead.

A STRONG NATION

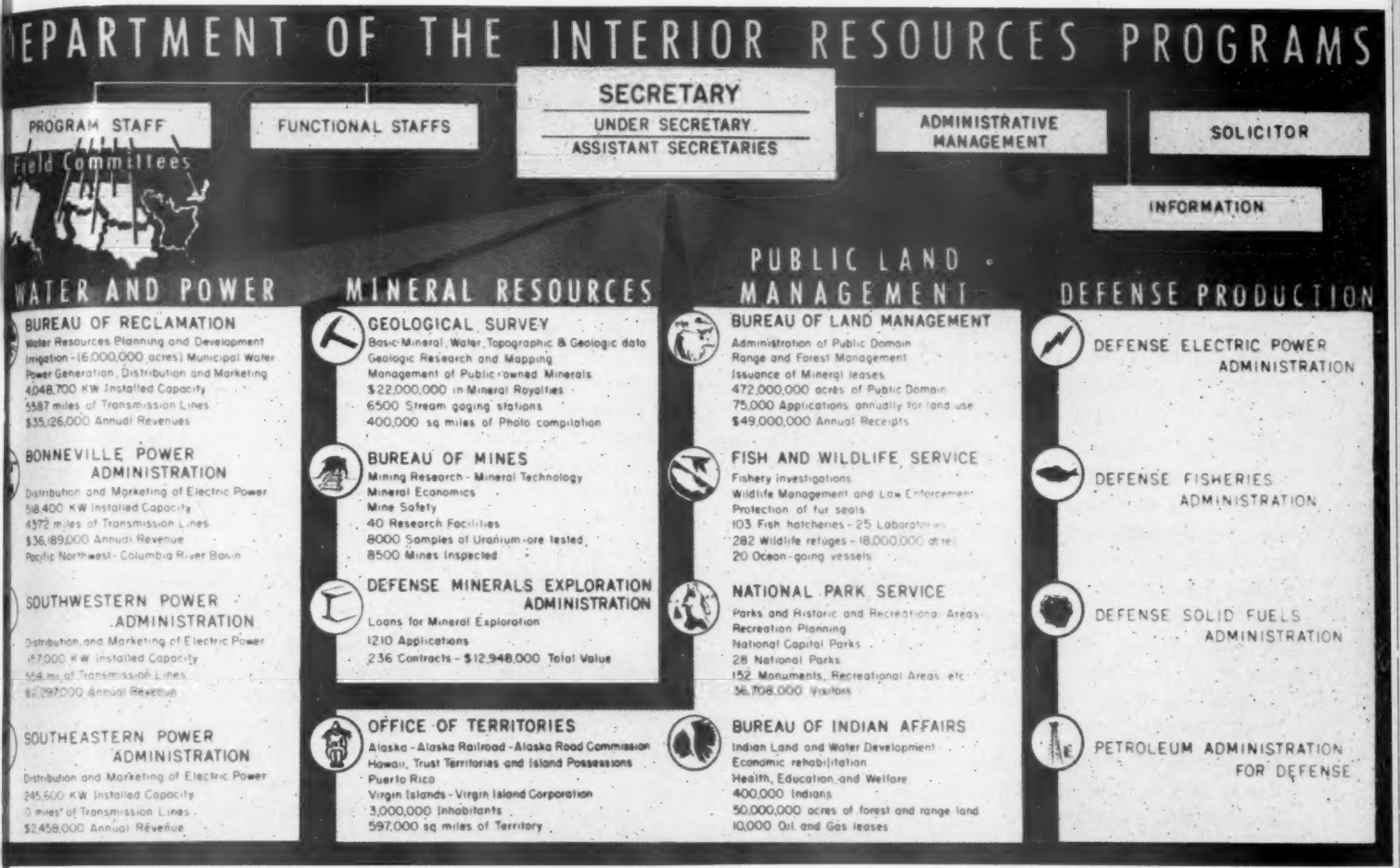
I believe that what we do with our great natural resources during the next 50 years will determine, to a large extent, whether we can continue as a Nation to be strong—strong economically, and strong in a military sense—and at the same time preserve the democratic social and political structure which has always made us a land of equal opportunity.

The stakes are very high, and the public interest in this particular field is exceedingly great. While in the resource development field, as in other spheres of economic activity, private enterprise is and will be the dominant manager of our resources, yet in this area considerations of the public interest and of the general welfare provide the framework in which these private actions take place. This fact has long been recognized in State and Federal policy.

Farmers and timber owners, for example, recognize today that they are not free to misuse their soil and forests. Similarly, the petroleum industry generally supports the control of well spacing as a sound conservation policy.

It is considerations of this sort which determine to a large extent the character of Government responsibility with respect to natural resources. In general terms that responsibility as discharged by the Department of the Interior includes:

1. Management of Federal lands which contain substantial agricultural, forest and mineral resources.
2. Development of resources not suitable for private development such as parks, fish and game resources



and certain large multipurpose water developments.

3. Research in order to improve technology of resource utilization, especially in minerals, to develop substitute resources, to minimize waste, to lower costs and improve safety in resource development activities.
4. Investment in certain basic resource developments which provide increased opportunity for related private enterprise, such as irrigating new lands, or expanding the water or power supply to make increased industrial activity possible.
5. Regulation of the development and use of certain resources in the public interest.

In discharging these responsibilities Government in a democratic society must be guided by two fundamental principles:

1. Benefits from resource development activities of Government must be distributed widely in the interest of all the people of the United States.
2. Resource development must be economically sound and efficient when measured against the long-range interests of the Nation as a whole.

These responsibilities and these principles provide a major part of the matrix from which the management tasks of the Department of the Interior arise. The other part is the responsibility we have for advising the President and Congress with respect to resource matters, anticipating to the extent possible the needs of our economy for resource programs and policies.

The preoccupation of the Department of the Interior with Federal resource activities will perhaps be clear to you if I recall that the Hoover Commission Task Force which studied the Department recommended that it should become the core of a new "Department of Natural Resources." A glance at the departmental organization chart suggests the extent of our concern with resource and resource development.

The basic resource responsibilities of the Department of the Interior fall into three areas: water and power, minerals resources and public land management. In addition, the Department has been assigned certain responsibilities related to the defense production program.

The Bureau of Reclamation, Bonneville Power Administration, Southwestern Power Administration and the Southeastern Power Administration are the bureaus concerned with water and power. In the minerals area we have the Geological Survey, the Bureau of Mines and the Defense Minerals Exploration Administration. In the public land management area the bureaus concerned are the Bureau of Land Management, the Bureau of Indian Affairs, the Fish and Wildlife Service and the Office of Territories. The defense production agencies include Petroleum Administration for Defense, Defense Electric Power Administration, Defense Solid Fuels Administration and the Defense Fisheries Admin-

istration. Later on I will come back to this chart to explain how the Department's management responsibilities are carried on.

MAJOR MANAGEMENT TASKS

I earlier referred to five basic governmental responsibilities in the resource field and to the principles which must guide us in carrying out these responsibilities. Together they create the major management tasks of the Department of the Interior. In my experience, these tasks generally might be stated as follows:

First, we must determine what the Department can and should do to protect and develop our natural resource base. In management terminology this is essentially a planning and programming job. Its fulfillment, of course, depends upon an analysis and understanding of the importance and potential of resources in the economy and of the relationship between requirements and supply.

Second, we must balance many interests and reconcile conflicting uses; we must seek to develop integrated and balanced programs which weave together national and local interests, short and long-run advantages, specialized and generalized points of view. The problem is a challenge to our managerial ingenuity and originality, and I believe that we have made significant progress toward meeting the challenge.

Third, we must find some way of bringing the regional point of view into consideration. Like most Federal agencies, the Department had retained decisions in Washington, and regional considerations often were slighted or ignored. This made coordination in the areas involved almost impossible, and violated the obvious fact that resources are integrated in nature. This management problem is of course not one of either-or, but of reconciling the regional and the national points of view. Here, too, I believe that we have made considerable progress.

Let me illustrate by several examples which I believe will convey to you some idea of the complex character of our management tasks and the techniques and procedures which we have developed to deal with them.

First, let me cite the Hells Canyon proposal as a current illustration of all three of the management problems referred to previously. We are recommending to Congress that this project be constructed by the Bureau of Reclamation on the Snake River between Oregon and Idaho. It is a major engineering work, which will produce an estimated 1,430,000 kilowatts of firm power on a system basis.

Our recommendations were based upon detailed analyses of the relation of this project to the regional and national economies. The load analyses and requirement projections of the Bonneville Power Administration indicated some years ago that Hells Canyon power would be needed in the region, if the Northwest were to continue to provide private employment and investment opportunities. This was essentially the planning job.

But construction of Hells Canyon Dam raises problems of conflicts among resource uses and among various interests. Steps had to be taken to identify and clarify these interests.

COMPLEX PROBLEMS

I want to refer here to the conflict with the Idaho Power Company as a specific example of the complex problems we face. The company has proposed an alternate plan for the development of this portion of the Snake River. They would build 5 low dams producing about half as much power—power that would be available for their exclusive distribution at their rates. The questions which I had to decide in recommending Hells Canyon to the President and to the Congress were:

Should the interests of the region and of the Nation (since electric power is in such short supply) be sacrificed to that of the Idaho Power Company and its stockholders? Can the region and the Nation afford to lose permanently 600,000 kilowatts of power? Will the public interest be adequately served if denied the benefits made possible by low power rates? Is the public interest served best by a dam planned and operated as part of a multipurpose river system or by the construction of 5 dams operated for a single purpose?

Let me assure you these are not easy questions for me or for the people concerned with one aspect or another of this development.

Here is another example illustrating the problems which arise from competing resources uses. In northeastern Oklahoma, the Corps of Engineers is proposing to build Oologah Dam to provide much needed downstream flood control benefits on the Arkansas River. But Oologah Reservoir would flood out part of an extensive oil field which is still a substantial source of oil.

The question is: Where does the dominant public interest lie—in erecting this needed flood-control project now, or in first extracting the oil from this field? It is by no means an easy question to settle, and I might point out that the two Senators from Oklahoma—both of them sincerely anxious to see the problem settled in the public interest—take opposite sides on the question.

The issue is still pending. Meanwhile, it points up the problem so often met in resource development. Once the resource problem is clearly recognized, and after the utmost efforts have been made to resolve or compromise conflicting claims, you may still run into the necessity for making a hard choice between the two claims, and there is no easy administrative arithmetic which will provide the answer. Only sound management and organization can give the assurance what decisions will be made on the best information and consistent with national interests and policies.

Another example which illustrates the responsibility which the head of a Department concerned with natural resources must carry involves the synthetic liquid fuels program. Our present oil reserves are plentiful. But the experience of World War II brought to many of us the fact that they are not limitless.

INSURANCE PROGRAMS

We know how indispensable petroleum and petroleum products are to the strength of our economy for war or for peace. For this reason we recommended and Congress authorized a synthetic liquid fuels program as insurance against the day when natural oil is depleted.

As in the case of all insurance, the event against which protection is sought may not develop. We have no crystal ball to tell us whether atomic energy, solar energy or some other source may make

petroleum as obsolete as Ben Franklin's sedan chair. We cannot take the risk of not having gasoline and oil and of course our research studies and resource analyses suggest that the expenditure of millions of dollars to develop synthetic fuel processes, so that private business can adopt them when economically sound, is a proper governmental function.

THE ROGUE RIVER

Let me cite just one more example and then say an additional word or two about the management devices which we have deplored in the Department of the Interior for dealing with resource management problems. My last example concerns the Rogue River which drains the region on the California-Oregon boundary.

The Rogue River is an interesting stream for many reasons. Its upper reaches represent one of the few remaining wild areas of the West. Here the citizen may find a small section of our land in its pristine state as it appeared to the Indians before the white man's invasion. The central portion of the Rogue Basin, in contrast, is a flourishing agricultural community, dependent on the water of the river for irrigation. The lower river, finally, is an excellent salmon stream.

At the request of the local people some years ago the Bureau of Reclamation prepared a plan for the development of this stream for irrigation and power production. But this plan, which adequately provided for these interests, threatened both the wilderness and scenic resources of the upper river and the salmon runs of the lower river. How, under these circumstances, can a comprehensive resource development plan for the basin be prepared.

The first step was to make certain that all the bureaus concerned carry on the research and investigations necessary to developing and appraising such a plan. In the case of the salmon problem, for instance, this involves a 4 year study of a complete fish cycle. But we would not succeed in developing a truly comprehensive plan if the various specialists concerned each went his own way in studying the narrow aspects of those basin resources in which he is interested.

It is at this point where our field committees are significant. They bring together, once a month or more often, the field officials of the several bureaus. Thus, in the case of the Rogue, the Pacific Northwest Field Committee has provided a forum for discussing the plans for the basin in their formative stages. It has also prepared for my approval a coordinated schedule for the completion of the necessary studies and investigations. Through integrated administrative planning we are developing a truly comprehensive plan for the Rogue Basin.

We return now to the management mechanisms which we have developed to handle our resource responsibilities. I have referred to the Pacific Northwest Field Committee. Similar committees have been established in the Colorado River-Great Basin, in the Southwest, in the Missouri Basin, in the Pacific Central Region, in Alaska and in the New England-New York area. These committees have a major planning job to prepare annually six-year program proposals for their respective regions. These program reports seek to relate departmental activities to the needs and opportunities of the regions and to develop a coordinated department-wide approach to resources development.

ORGANIZATION

Committees of a similar character are not uncommon in other agencies. A unique feature of our setup is the fact that the chairmen of the committees are full-time employees reporting directly to me through my program staff, which carries a major responsibility for defining and clarifying broad development goals as they relate to the work of the Department of the Interior.

Operational and line responsibilities have been placed in the bureaus listed on the chart under my direction. The management team which helps me carry out my complex responsibilities in the materials and resources field include the Under Secretary and appropriate assistant secretaries, with responsibilities for particular resource clusters.

The team also includes the administrative assistant secretary with responsibility for budget control and the usual management services.

To assist in program coordination and control, this team has the normal administrative management staffs, a program staff, a division of international activities, and three specialized functional divisions—for water and power, land utilization and minerals and fuels.

It is, of course, clear to all of you that all the problems of program coordination and integration are not as dramatic as those I have cited. Often such relatively simple things are involved as scheduling the mapping program to meet dam design and construction needs, or relating mineral investigations to water development plans. Yet all of these activities require sound and continuing managerial attention.

The task of managing the Nation's natural resources implies strict adherance to fundamental principles.

It requires that we fully recognize the needs of our expanding economy — including the need to keep it an expanding economy—and our national security responsibilities.

It compels us to keep looking constantly toward a fuller utilization of our resources, keeping the claims of the different resources in balance and working without flagging for sustained yield of the benefits which they provide.

It calls on us to make hard decisions, at times. We must guard against hasty actions while we study the interrelationship of the different resources and the full effect which development of one resource may have upon another resource. It means balancing tangible gains against the intangible benefits, at times, and it lays down the principle that the greatest good of the greatest number must be dominant in all our planning.

Lastly, it calls upon us to make a declaration of faith in the future of this Nation. We believe that if we manage our resources wisely, keep our freedoms, and look always toward the general welfare, that the future is secure. In that faith, we go forward with our job of management.

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Publication date — JULY

Free Enterprise Is Not A Hunting License

by CLARENCE B. RANDALL

President, Inland Steel Company

This article is to be part of a book Mr. Randall is now writing for THE ATLANTIC MONTHLY and is reproduced here by courtesy of THE ATLANTIC MONTHLY.

THESE ARE VERY sobering days for the American businessman. The world as we have known it is falling to pieces around us. The relentless and paralyzing creep of socialism day by day draws nearer to the things in which we most deeply believe.

The other evening I happened to be at the home of a friend of mine in one of our Chicago suburbs which is very remote, and as I sat there in his lovely country home, I said, "What do you do around here when the house catches fire?"

He said, "Perfectly simple. We know exactly what to do. We get on the telephone immediately. All the neighbors rush over and watch the house burn." We mustn't be that way in the business field today.

Or to put another metaphor to you, think of the villagers who live on the side of Vesuvius. Suddenly they see the top of the mountain blow off. The hot lava starts flowing relentlessly down the side of the mountain, burning here a bush and there a tree, and they wonder whose house will be first. They stand idly by with a sense of desperate futility because they don't know what to do about it. That must not be true with us. And in my judgment it need not be true with us. This avalanche can be stopped.

I have searched my mind as to why it is, as businessmen, we seem so paralyzed with fear these days, and so certain that we are going down the chute. We know that socialism is a failure. If ever the people of the world needed a laboratory experiment to disprove the theories of the Fabian socialists, they have it in the conditions in England. And it is no mere accident that the one nation strong enough to bear the troubles of the whole world is the last citadel of free enterprise.

Across the seas we have seen our Anglo-Saxon cousins try the experiment which is offered now to us, and have seen them go down close to complete bankruptcy and destruction. I have watched it with my friends in the British steel industry. Because of my service in the Marshall Plan I have come to have wide acquaintance with men in the steel industry in Europe.

I once talked with an officer of one of the great steel companies of England, and he told me: "I say to you something I have no incentive to go forward. If I think I can take it. I think I must stop. All the things that I believed in are gone. I have no incentive to go forward. If I win, nobody will give me credit; if I lose, I will be blamed. I think I must stop."

Now, what can that mean in the economic stagnation of a country? What will it mean if the men who should be the national leaders suddenly feel they can't take it, that they have to stand aside?

That great laboratory experiment in socialization is before the world; and yet, in the face of it, disguised socialization is offered to us day by day in myriad forms, and we know it, are disheartened, but are not certain what to do about it.

SAD CONCLUSION

I have searched my mind as to what may be the reason why the American businessman today is not making headway against this trend with the same vigor, the same determination, that he ought to have, and I am afraid I am led rather sorrowfully to this conclusion: that in his own natural circle of influence the American businessman today is not looked to as the leader. I say that sadly, but I am afraid it is true. Yet if we in our own individual circles of influence are not the natural leaders of the people, we cannot collectively form public opinion.

Now, it was not always thus. A hundred years ago, when our prairies were being broken into civilization, the businessman was the leader. He formed the communities. He built the churches and the schools and established the courts; he participated in the territorial and then the state government; he went to Washington; when war threatened, he raised the company of volunteers; it was he who formed public opinion, and it was toward him that people looked for guidance and leadership.

That was still true fifty years ago in my boyhood, and I think of a figure in the village I lived in in New York State who typified the things I am talking about. In my little town of less than 800 people, a farming community, my father kept the general store. We had just one industrialist in that town, and he was the blacksmith.

Now, he was the best blacksmith in all those parts. There were other blacksmiths in the villages near by, but whenever there was a tough job it came to our man. He had a good forge, good tools, he was absolutely tops in his craft; but that wasn't why he was the leader in our village. Without that he could not have qualified, but he knew that when he went home at night from the forge, having been a good craftsman all day, his job wasn't done. In addition, he was the superintendent of our Sunday School; he was the one under whom I learned the Ten Commandments and the Sermon on the Mount, and learned to sing the beloved old hymns. But that wasn't enough.

He was also the president of our school board, and when I graduated from high school he handed me my diploma. As his fame spread from our village to the surrounding villages, he came to be widely known in the county, and we sent him to the legislature as the representative of all the people.

Four things about that old blacksmith typify the qualities needed today in business leadership. The men in the steel industry and the forging industry are the lineal descendants of that early blacksmith, spiritually speaking. We must be tops in our job. We owe it to American production to let no man excel us in competence in our business jobs, but we have no right to think that that in itself establishes us as leaders in our communities, because it doesn't.

Who among us is superintendent of a Sunday School or is having a part in some other character-forming agency? We decry double morality in government and corruption in high places; yet what as businessmen are we doing to form sturdy characters in the young men and women who will bear those responsibilities in another twenty years? We turn to the universities for the best brains they have to bring into our businesses. We seek them avidly. What are we doing about maintaining those educational institutions? We know perfectly well that with a privately endowed institution the student's tuition pays less than half of the cost of that education. Are we willing to take that education as a gift to us and do nothing to perpetuate those institutions that mean so much to us? Who among us seeks out the principal of the local high school and brings him home to dinner for a chat, and who invites the professors of the colleges and universities to his business places that they may understand firsthand his business problems?

Who among us takes the active part in the day-to-day political life of our nation that he should? We shrug that off, assuming that somewhere there is a group of wise and able men with lots of leisure to perform those tasks. We cry out for the best of leadership in American life, but who among us has run for office, who has gone down to Washington, who has left his business desk to stand at Charles Wilson's side to help bear the burden of government in this crisis?

Clarence B. Randall has been with the Inland Steel Company since 1945 and since 1949 has been its President. He was invited by Paul Hoffman to be the Steel Consultant for ECA in its first year. This brought Mr. Randall into close association with the steel masters on the Continent and in Britain and has enabled him to speak with more than usual authority for the American system of Private Enterprise.

Those are heart-searching questions, my friends, but they bear directly upon this problem of business leadership. I have the feeling that as businessmen we worship production too much. That is a strange thing for me to be saying. I am tremendously proud of the job of production that the steel industry has done. When I look back at what steel capacity was when the other war began, and what it is today, it seems to me unbelievable that in the state of advancing costs that we have faced, the steel industry has brought about the miracle of increase in production that it has.

All of the steel production of the free world outside of the United States is, of course, less than ours; and yet, as I say, I think we can go too far in polishing our own ego by telling ourselves over and over again what great big wonderful men we are in production. After all, production is not an end in life, Production is a tool. God didn't put man on this earth just for industrial production. He put man on this earth to live the good life, the rich, full life, to develop the powers of his mind and the powers of his spirit, to make the world a better place because he has lived in it. We must keep production in its place as we think about life.

PEOPLE ARE HUMAN

The people in your community, frankly, aren't terribly excited just because you have increased your production 50 per cent since 1945. That leaves them just a little cold. They would like to know what is going to happen to the pavement in front of their house; they would like to know how long you are going to stand by and see gambling places open to their high school seniors. They want to know how long the hospital in your town is going to be unable to take in the desperately ill, and so on through the whole gamut of community and civic services which are your job as well as theirs.

Whenever an industry goes into a new, remote place, what does it do? What has the oil industry done since it has gone into Venezuela? The first thing the oil people do is to build a modern community. They recognize that it is their job to see that there are good housing, good churches, good schools, good entertainment and recreation, and everything that goes to make the good life for the American. That job is your job as much when you live in a congested city as it is when you operate in the remote place, only you don't quite see it.

Only by re-establishing ourselves in leadership in the things that mean something to the people, and not merely in production, will they turn to us for guidance on these social and economic questions with which we think the country is threatened.

Now, when people lose the respect of those about them, several things ordinarily account for it. One of the first is always the question of integrity. No man can have an important part in forming public opinion if there is the slightest question about his integrity. I don't mean vulgar things like stealing money or juggling accounts, but I think we may well do some heart-searching on various aspects of our business creed on the subject of intellectual honesty. We dislike people in government who talk out of both sides of their mouths. We must, however, be very careful that we, ourselves, don't talk out of both sides of our mouths.

The first and obvious question is whether we have genuine, vital, honest competition one with the other. The free-enterprise system is not just a hunting license to you to get all that you can get without restraint. The free-enterprise system is a way of life which brings the greatest good to the greatest number, but it must be policed by the free market. The two are inseparable.

We resent price controls. We say that price controls are not required because the operation of natural laws, supply and demand, will themselves adjust prices.

The thing we dislike about it is that those natural laws are suspended by government. Now, if that be true, and if those natural laws are what guarantees to the public the integrity of the free-enterprise system, we have no right as private individuals to suspend them. We have no right as honest men to tamper with that automatic control mechanism.

My friends of the British steel industry tried it and they got nationalization. They wanted price rigging; they would rather have the guaranteed price than freedom. They took price fixing under government control, and thereby created the handy tool which government needed and used to nationalize them, and I say we can't have it both ways. We can't have the freedom of free enterprise and not assure to the American people a free market.

SOURCES OF CAPITAL

The second thing that bears upon our intellectual honesty is our understanding of the sources of capital. The free-enterprise system must perpetuate itself; it must find the capital for expansion in the savings of the people. If we can persuade enough new people to become partners with us in industry, we shall simultaneously find our required new capital and solve our public relations problem. We have no choice but to turn boldly toward the mass savings of the two most powerful political groups in America—the worker and the farmer. That the worker and the farmer have in the aggregate sufficient savings to relieve the capital stress in heavy industry seems to be clear from every authoritative survey. But it is equally clear that at present neither of these groups is devoting its savings to the purchase of common stocks.

One thing is certain, and that is that there must be no employer pressure. Our job is to explain and to create an atmosphere of understanding, but the action must be voluntary on the part of the worker. He must take the risk because his self-interest is aroused, but he must do it with his eyes open.

I know of no reliable statistics on this subject, but as nearly as I can guess less than 2 per cent of the men and women employed in the production of steel own stock in their respective companies. And one of the most revealing figures is the low percentage of officials and supervisors who buy the stocks of their companies. They buy new automobiles and television sets, but no common stocks. As their future has become more secure through the operation of pension plans, they have tended to live more and more right up to the limit of their current incomes. They show little understanding of their personal relationship to the perpetuation of the industry that provides their livelihood.

We have help at hand where self-interest is very much at stake. The security exchanges and security dealers across the country sense this problem keenly and would welcome support from the industry.

Some think that the best medium is the open-end investment trust, designed specially for the farmer or the worker. The thing that might be lost there is the sense of ownership and stake in a particular enterprise. The worker and the farmer do pay insurance premiums, and insurance companies lend money to companies, but the process is so diluted that the ultimate investor does not know our successes or fear our losses.

To these and similar questions I have no specific answers. But twenty-five years ago neither did the engineers who were struggling with continuous rolling. They saw a job to be done and did it. And because they were determined and resourceful, vast new areas of usefulness to the public were opened up to the steel industry. This new challenge is different. It is abstract. It is intangible. But its possibilities are likewise vast. When we reach every responsible segment of the American public through the time-honored method of joint venture, we shall find our future expansion adequately financed.

We shall have the public with us instead of against us.

Unless we can bring into industry the mass savings of the workers, we shall not have sufficient capital for the further development of industry. We have to teach the American public the profit-and-loss system of risking for gain. And we must not take the easy way out, of asking government for capital. I say integrity is involved when any advocate of the free-enterprise system turns to government for anything, whether it be money or a special law or a special regulation.

We must be tough; we must recognize that if we believe in free enterprise we have to accept its limitations in order to get its values.

Now, this takes me straight to this point: the time has come when every American businessman must have his own thoughtful, personal philosophy. He has to know what he believes and why. We sometimes think that we have put in a terrific day because we have worked so many hours or kept so many appointments.

I am a little tired of hearing how hard men work, in terms of the hours they put in and the number of places they have rushed to by automobile or airplane. It isn't the number of hours you put in in a day, it is the number of ideas you have in a day, that counts now.

We are in a conflict of ideas, and the forces of darkness are well equipped with men who understand ideas and how to use them. I know a man in business who has a very responsible job, and thinks he is a great success, who to my knowledge hasn't read a book in twenty-five years. He wouldn't know what to do with a book if you gave him one.

We need time to think; we need time to reflect and to understand and to do the heart-searching that I have been talking about. We must have opinions on the questions that are perplexing these friends of ours who are in government. We must understand the problems of business. We must also get to the top level and try to understand the implications of the foreign problems of our country. As we approach those difficult questions, we must study, have patience and honest discussion with those who differ from us. We must consciously try to forge a philosophy that is clear in our own minds.

GET A MOVE ON!

That is all necessary if we are to be restored as leaders in America. Having once formed that philosophy, we must do something about it. We must communicate those ideas to those about us on every conceivable occasion, by every medium at our disposal.

Take the worker. Why should the worker be barred from knowing what the opinion of the boss is about taxes, about Korea, about politics? If the worker is barred from our leadership, it is by our default.

Now, I would be the first to insist that no management plan intrude upon the

proper function of labor leadership in such things as collective bargaining. It is right that the worker who is organized should turn to his leaders in the subject matters that deal with employment, but there is no reason at all why he should turn to those leaders any more than to you for guidance and for wisdom in the great social, political, and economic questions of the day. And I have a sneaking opinion he would rather know your opinion than he would the other fellow's. He honestly thinks you know more about these things than his labor leaders and you aren't telling him, you aren't doing a thing about it. And in that connection you are certainly overlooking the distaff side. What the woman thinks is awfully important today, and it seems to me not only proper but compelling that the employer have views on these important questions and from time to time, in personal meetings or by letters to the home or any other means of communication, tell the workers and their wives what he thinks.

GOD'S GREATEST GIFT TO MAN

If we honestly believe that the free-enterprise system is God's greatest gift to man, why can't we believe in it so deeply and understand it so clearly that we talk about it everywhere we are, to everybody who comes within the sound of our voice? We have to use the written and spoken word to expound and develop and promote a clear philosophy, but I don't advise you to start talking until you have begun thinking. It is no good opening the tap if there is nothing in the tank. There are people who do that. You have to have a head of steam before you release it, and that means you must take time out from the busy, bustling worries of your life and make up your mind what it is you think. Then when you know what you believe, you can convince anybody of it if you believe it deeply enough.

What is the essence of freedom in business? It is not the right to do all that we want to do, for ourselves. We are restrained, but by what? The essence of the American way is not restraint by law, but restraint by conscience. It is the self-imposed restraints that are the essence of the free-enterprise system. We may press our advantage to the full, but we must stop short of damaging others, and we are to be the judges of when to stop short. It is the abuse of that freedom that creates law. It is when men do not impose the restraint their conscience dictates that we turn to government, and the more we fail in self-restraint and the more we turn to government, the greater is the likelihood that we will go the socialist way.

PRESERVE FREEDOM

We must on the one hand preserve the great drive that comes from freedom. In some forms of society, man is kept to his job by the whip. Under our system we are kept to our job because we know that our interest parallels that of society, but when the time comes that those lines cross, and we press our advantage to where we are causing damage to the common good, law is necessary. Therefore, the greater our abuse, the more the law and the inevitability of socialization.

The freedom that we enjoy in the free-enterprise system is the last strength of civilized man. It is for us to preserve it and develop it. We do that by understanding it and, with scrupulous integrity, maintaining it.

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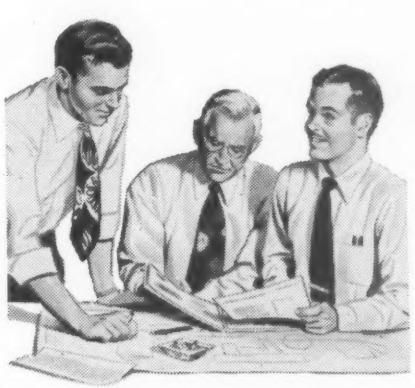

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SOCIETY NEWS

PROPOSED AMENDMENTS TO S. A. M. BY-LAWS

The following amendments were considered favorably at the April meeting of the Board of Directors and are hereby published for further consideration before final adoption, in accordance with section X of the By Laws:

Be it resolved that that portion of Section I d reading "prior membership in the Taylor Society or the Society of Industrial Engineers before their merger into the Society for Advancement of Management" be amended to read: "prior membership in other societies formally merged into the Society for Advancement of Management." The purpose of this amendment is to recognize membership in the Industrial Methods Society which was also merged into SAM, as well as in any other society which may hereafter be merged into SAM, as counting toward eligibility for Life Membership.

Be it resolved that that portion of Section III be deleted which reads: "Any unexpired portion of dues shall be credited to the member's account against annual dues for the succeeding fiscal year." This sentence has had no practical applicability since the adoption of cycle billing which eliminated July 1 as a dues date for all members.

HOWARD K. HYDE
Secretary
S.A.M.

S. A. M. MEMBER TO RECEIVE GANTT MEDAL

Frank H. Neeley, member of the Atlanta Chapter and chairman of the board of Rich's, Inc., and of the Federal Reserve Bank of Atlanta, is slated to accept the gold medal at a meeting in New York September 30. The medal, which is a memorial to Henry Laurence Gantt, world-famous pioneer management engineer, is awarded annually by a board made up of four members from ASME and four from AMA.

Mr. Neeley will receive this year's Gantt medal for "distinguished achievement in industrial management as a service to the community".

As a Georgia Tech graduate engineer, Mr. Neeley worked with and under Mr. Gantt at Westinghouse from 1904-1908 and later, after returning to Atlanta, employed Gantt procedures in his consulting engineering office which specialized in production problems. He has often been referred to as "Atlanta's Prince of Progress".

CHAPTER STANDINGS
As of May 1, 1952

MEMBERSHIP		CHAPTER PERFORMANCE AWARD	
New York	438	Washington	3281
Chicago	320	Greensboro	2647
Philadelphia	308	Hudson Valley	2298
N. New Jersey	290	Pittsburgh	2295
Cleveland	284	Allentown	2256
Cincinnati	267	N. New Jersey	2117
Washington	234	Milwaukee	1952
Boston	208	Boston	1679
Pittsburgh	205	New Brunswick	1670
Detroit	177	Atlanta	1661
Los Angeles	140	Chicago	1594
Milwaukee	132	Trenton	1548
San Francisco	112	Baltimore	1503
Greensboro	107	Philadelphia	1481
New Brunswick	105	New York	1401
Indianapolis	100	Detroit	1389
Lancaster	99	Wilmington	1374
Dayton	93	Indianapolis	1145
Dallas	91	Wilkes-Barre	1069
Asheville	89	Cleveland	997
New Haven	88	Central Pa.	829
Baltimore	85	Montreal	791
Hudson Valley	85	Worcester	716
St. Louis	63	Los Angeles	636
Montreal	62	St. Louis	635
Allentown	61	Lancaster	633
Bridgeport	60	Cincinnati	621
Worcester	60	Dayton	572
Providence	58	Richmond	561
Atlanta	57	San Francisco	554
Trenton	54	Asheville	487
New Orleans	53	Nashville	476
Columbus	52	Columbus	439
Central Penn.	51	Bridgeport	438
Hartford	50	Dallas	432
Louisville	49	Birmingham	431
Knoxville	48	Portland	422
Wilkes-Barre	48	Knoxville	369
Wilmington	48	Western Mass.	360
Birmingham	46	Manchester	327
Manchester	42	Louisville	310
Baton Rouge	37	New Orleans	275
Portland	37	Central New York	243
Richmond	37	New Haven	195
Twin City	35	Providence	183
Western Mass.	33	Stamford	132
Central New York	33	Hartford	106
Kansas City	24	Kansas City	80
Nashville	14	Twin City	30
Stamford	12	Baton Rouge	12

ANNUAL CONFERENCE

The Western Massachusetts Chapter presented its First Annual Conference May 15th in Springfield, Mass. The conference was opened by Richard Wilson, Chapter President. Gerald Mitchell, Director and Senior Associate of Bruce Payne & Associates, Inc. of Westport, Conn., who was introduced by Mr. Wilson, spoke on the subject of "The New and Consistent Rating Technique". S. M. Dix of the General Foods Corporation of New York explained the mathematical calculations and the history of the SAM Rating Films at the Rating Session.

The feature speaker for the dinner session was Harold Engstrom, Chief Industrial Engineer of Sylvania Electric Products of New York. Mr. Engstrom who is the new National SAM Treasurer, discussed "Industrial Engineering Responsibilities to Management".

ATLANTA MANAGEMENT CONFERENCE

The Atlanta, Georgia Chapter and the Student Chapter of the Atlanta Division of the University of Georgia were two of the cooperating agencies who presented The Atlanta Management Conference on April 8th. The theme for the conference was "Management Philosophies of 1952". SAM was in charge of the afternoon session with Harry B. Moore, President of the Atlanta Chapter, presiding. The speakers for the SAM session included Ralph C. Davis, Chairman of the Management Department of The Ohio State University, whose topic was "Tools of Successful Management"; Allen Albert, Director of Public Relations of the Lockheed Aircraft Corporation of Marietta, Georgia, who discussed "The Responsibility of the Corporation and the Individual in the Corporation to the Community", and Merl Douglas of the Personnel Department of Sears, Roebuck and Company of Atlanta who spoke on the subject of "Two-Way Communication in Management". During the discussion period which followed the lectures, Ralph C. Davis was the moderator.

The Management Bookshelf

The Lonely Crowd: A Study of the Changing American Character by DAVID RIESMAN, REUEL DENNEY, and NATHAN GLAZER, published by Yale University Press.

"THE LONELY CROWD" is one in the Yale series of Studies in National Policy. We won't agree with all its reasoning and theorizing, but we will agree with most of what it describes. It has been widely and impressively reviewed. *Business Week* (August 18, 1951), a very practical and obvious magazine, devoted three pages to this subtle psychological analysis. To many it may seem a confused book about confused times, but it is a powerful and an important one.

I recommend that we listen closely to what Mr. Riesman has to say. I recommend that we overpraise rather than underpraise his book. To keep this review short, and I hope provocative, I am going to confine myself to three general observations.

First, quite a few recent studies corroborate Mr. Riesman's descriptive findings. Ranging far afield we find at one extreme in the January issue of *Fortune* an article on the "social engineers" that is reminiscent of what "The Lonely Crowd" has to say; and at another extreme we find Chief Quartermaster W. J. Miller, USN, in an article "The New Look" in the September 1951 *Proceedings* of the U. S. Naval Institute, writing: "a new concept has taken hold of the minds of half the people of the civilized world. The concept that popularity and the affection of our fellowman are more valuable than money, honor, and health—with eternal salvation thrown in for good measure".

Secondly, I believe that Mr. Riesman is the Thorsten Veblen of our epoch. Like Veblen he had produced a stylistic and insightful *tour-de-force*. Like Veblen the very objectivity and detachment of his stand as well as certain fundamental faults or omissions of philosophy make much of his work amount only to ingenious and brilliant social analyses in the descriptive sense and not in the sense of answers to modern life.

Thirdly, I wonder if Mr. Riesman in emphasizing the modern anxiety for group approval has not made the mistake of ascribing all ethical behavior to the basic desire for peer-approval. Veblen put too much on conspicuous consumption. Mr. Riesman puts too much on group approval. (For our purposes his highlighting is all the more valuable for being the more vivid — it takes so much to wake us and others up to things.) But one has to wonder throughout his book if the slow working out of the leaven of Christian ethics in the western world could not also explain much of the reported anxiety of people to do "the right thing". For much of our modern group approval is the overt expression of the admonitions towards good neighborship. Sadly enough, Mr. Riesman could probably counter by saying, and being right to a great extent, that the modern character is being christian for the wrong motives. Western middle class man is ethical because it works, because it obtains group approval and not because he is a saint. Group pressure, indeed, will not permit the "nonconformity" of sainthood.

LT. FREDERICK C. DYER, USNR
Training Publication Section
Bureau of Naval Personnel
Department of Navy
Washington, D. C.

Administrative Action—The Techniques of Organization and Management by WILLIAM H. NEWMAN, published by Prentice-Hall, Inc., New York, N. Y., 483 pages.

PROFESSOR NEWMAN notes in his preface that his text has been developed to help improve the effectiveness of executives in modern industry. It is clear from an analysis of the book that its usefulness is not confined to that group of businessmen, but extends to the student of enterprise as well.

The text is well written, in a smooth, lucid style. It is easier to read than many books in the field of business with which it might be compared. At the same time, the materials contained within are inclusive.

To analyze the process of administration, the content has been divided into five parts: Planning, Organizing, Executive Personnel, Directing, and Controlling. These major sections indicate, to Dr. Newman, the work of the administrator. His "assembling resources," one of the basic processes of administration, covers not only executive personnel procurement but also the procurement of other facilities and capital. Discussion centers, however, on the provision and maintenance of executive personnel. This section is, incidentally, excellent.

The largest section of the book is the one on organizing. Within it, departmentalization is discussed as are the delegation of authority, the role of staff, decentralization, committee use, the span of supervision, and organization structure. The smallest section is devoted to directing. The process of direction is regarded by the author as an essential step in administration. Basically, he considers two subjects within his direction: communication and coordination. Other writers in this field have tended to group these functions within their definition of controlling. In the section on controlling, Dr. Newman has recognized various devices or techniques for control including budgetary control, standard instructions and procedures, and standard reports and correspondence. Motivation is also discussed in this section, including the role of incentives.

The first major section of the text discusses the process of planning. The role of objectives as guides to planning is evaluated. Attention is given to forecasting. A good treatment of the process of planning is presented. The section has abundantly used illustrations and cases to point up its major comments.

The author has judiciously used illustrations and case materials throughout the book. There is no semblance of a case approach. The cases are used, rather, to amplify the principles and discussion of the text. Many very fine charts and graphs, as well as materials contributed by various industrial organizations, are presented.

This text should be in the library of every student and practitioner of business.

JAMES H. HEALEY
Assistant Professor of Business Organization
The Ohio State University
Columbus, Ohio

Personal Supervision of Outside Salesmen by CHARLES W. LAPP. Published by the Ohio State University, Columbus, Ohio, 320 pages.

THIS BOOK IS A REAL, substantial and decidedly constructive contribution to the literature of Sales Management.

It is based on a scientific approach to determine first the objectives of Personal Supervision and the factors essential for the attainment of the objectives. Then comprehensive surveys were conducted by means of questionnaires, letters and personal interviews to ascertain prevailing practices and facts as to the present state of the art.

Throughout the study, which took three years, the viewpoint of both management and salesmen has been considered.

One survey was aimed to find out a salesman's attitude toward his company and his superiors. A second survey was made of companies of various kinds, size and location to ascertain their practices, conceptions and results.

Analysis of the returns from the surveys developed certain patterns of practices, concepts, organization, responsibility, tools used, costs, etc. These are presented in the 78 tables.

The first chapter deals with the Field of Supervision. The next five discuss Planning, Organization, External Sources of Aid, Methods, Supervision Tools. Five Chapters deal with the four phases of supervision, Individualized Continued Training of Salesmen, Control, Motivation and Communication. There are two chapters on Job Satisfaction and Salesmen's Opinion Surveys and Selection, Training, Compensation, and Evaluation of the Sales Supervisor.

The final chapter is a Summary and Recommendations.

Generally there are Summaries at the end of each chapter that are most helpful.

Supervision of Outside Salesmen as a definite, organized function of general sales management has not always been recognized and is often confused with selection, training and reporting of salesmen.

I know of no book that is as searching, analytical and constructive as this one on this subject.

If I were a president of a company utilizing outside salesmen I would make my vice president of sales read this book. Then I would ask him where do we stand in our practices, organization, method, etc., in the light of the criteria and recommendations set forth.

I think this book would be of measurable assistance to any president, sales executive or person dealing with or in direct contact with outside salesmen. It could prevent one from making serious or costly mistakes and aid one to do a better job in putting one's house in order. I know it would have helped me.

HAROLD V. COES
Vice President (retired)
Ford Bacon & Davis Inc.
Engineers
Past President ACME, ASME

Management Training, Cases and Principles by WM. J. MCLARNEY, published by Richard D. Irwin, Chicago, Ill., 358 pages.

This book is written in simple, everyday language. In planning it the author has kept in mind the people who will use it. The eighteen chapters are divided into four parts — 1. Management Team, 2. Job Management, 3. Developing the Team, and 4. Maintaining the Work Team. Each chapter conforms to a rather rigid pattern of (1) a brief introductory statement, (2) 13 to 23 bright, brief and useful case studies (267 in all), (3) a crisp clear statement of what the author considers the principles that can be applied to the cases, and (4) a list of questions with which a man can check up on his own performance as a supervisor.

The cases appear actual and are reported briefly. They are sufficiently general to be applicable to a wide range of conditions. Following each case the author asks from one to a dozen pointed questions intended to stimulate analysis and discussion. Thus scattered through the book are over 2,000 thought-provoking questions. The purpose is not to tell, but to challenge—to set situations and to stimulate readers thinking, either singly or in groups.

The book has the flavor of the job. There are many places where you can almost see the machinery, smell the grease or hear the shuffle of papers. It certainly is not the book for a training officer or shop foreman who wants all the answers to his problems handed out on a silver platter. Instead it promotes a thinking approach.

DAN M. BRAUM, Chief
Training Branch
General Services Administration
Washington, D.C.

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